

PRECISION AMMUNITION

Technical information

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norma

20 *Petty* 7x64



Norma and FFV - technical know

FFV — Förenade Fabriksverken — is an industrial organization with a high degree of technological know-how. The emphasis in the operation is in the fields of advanced mechanics and micro-technology. Within the group there are also substantial resources in the field of technical consultancy services.

The FFV group has plants and subsidiaries worldwide and employs about 8,000 people.

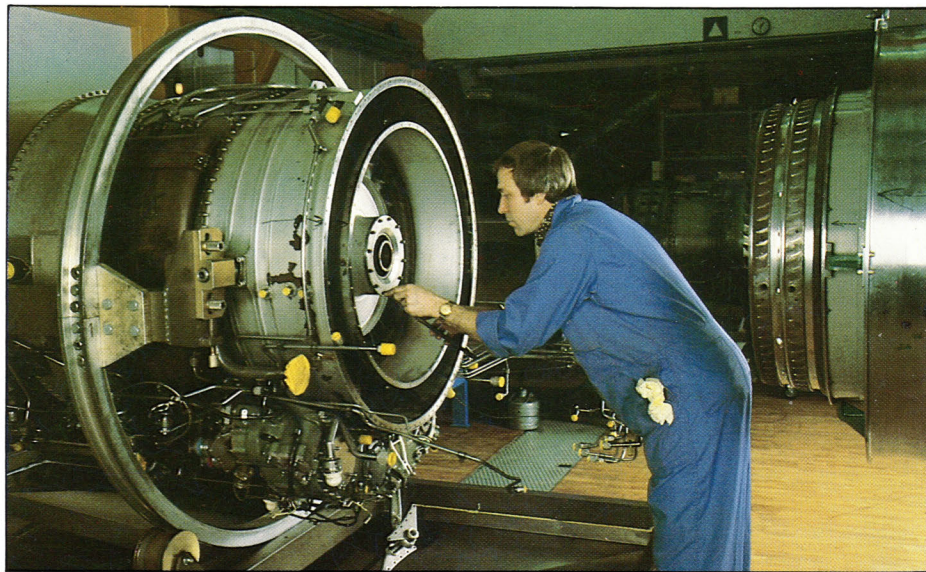
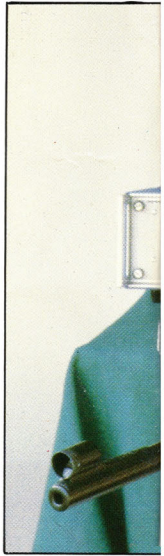
The technical know-how within FFV is primarily utilized to develop sophisticated defence systems, e.g. the internationally known anti-tank gun system FFV Carl Gustaf, used by the defence forces of several nations.

The activities within the civilian sector are vast with emphasis on technologically advanced manufactured goods where the Stirling principle has been used in several products such as transmission elements and electronic gauging instruments. FFV is the largest supplier of computerized scales and weighing systems in Scandinavia.

Technological skills are also utilized in the maintenance and servicing of sophisticated products such as aircraft and jet engines. Tomorrow's demand on precision and reliability require clean and almost particle free work areas. For the servicing of precision components, FFV uses rooms which are considerably more sterile than the operating theater in a hospital.

Being makers of both guns and ammunition FFV has resources to test the products very thoroughly. The test shooting facilities include photographic equipment where the entire sequence during the firing of a cartridge can be registered by high-speed cameras. Using special x-ray techniques it is also possible to observe what happens inside the gun and the ammunition. Gauging equipment enables a very thorough control of all components.

Norma, being part of the FFV-group can draw on this entire know-how and put it to use in the development of new products and during the continuous production control of ammunition. All with the aim of giving hunters and shooters a superior product.

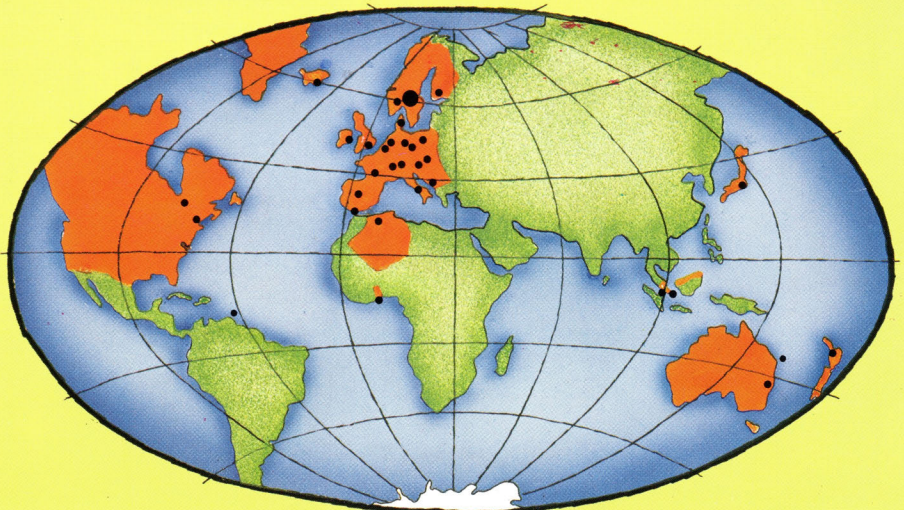


Norma products worldwide

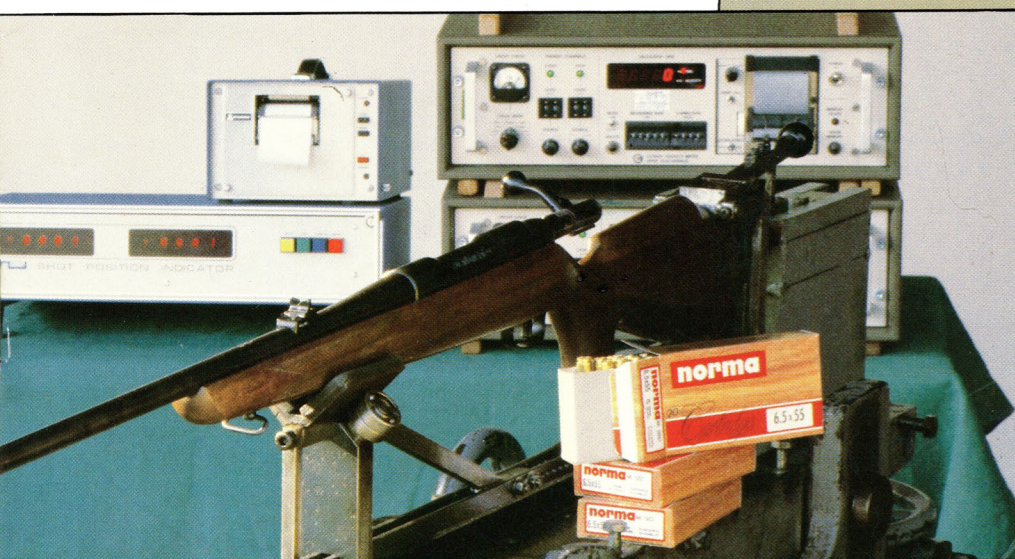
Norma are the ammunition specialists. We do not split our capabilities among different products, but devote ourselves to making good hunting and sporting ammunition. That is the goal we have had for almost 80 years during which we have assembled a vast fund of knowledge on the subject.

Norma has grown into a modern and efficient company — one of the world's leaders in the field of ammunition.

Norma cartridges are sold all over the world. Hunters on all continents have discovered the high quality of Norma ammunition and appreciate the accuracy that is one of our trademarks. Through co-operation with major distributors and importers in the field of guns and ammunition, Norma ammunition is available almost everywhere.



how for the benefit of hunters



Appointed distributors:

(as of December 1980)

Australia

Stewart & Allwood Pty. Ltd., 74 Abercrombie St., CHIPPENDALE, N.S.W. 2008

Austria

Firma Franz Sarnitz, P.O. Box 111, A-1191 VIENNA

Belgium

Schroeder Frères S.A., Rue Simonon 8, B-4000 LIÈGE

Canada

Canadian Sauer Ltd., 314 Judson Street, TORONTO, Ontario M8Z 5T6

Denmark

Julius Guldmanns Eftf A/S, P.O. Box 50, DK-4220 KORSØR

Mercia, Tordenskjoldsgade 27, DK-1055 COPENHAGEN K

Steen Yde ApS, Fjordvej 21, DK-8900 RANDERS

England

Parker-Hale Ltd., Golden Hillock Rd., BIRMINGHAM B11 2PZ

Finland

Finnarms Oy, Koreankatu 4, SF-00560 HELSINKI 56

(Importer: Kesko Oy, Satamakatu 3, SF-00160 HELSINKI 16)

France

Raymond Gérard S.A., Rue Rottembourg, F-75012 PARIS

Ets. Humbert, 52 Cours Fauriel BP 83, F-42010 S:T ETIENNE-CEDEX

Holland

Handelsonderneming Scheepers B.V., Valkenburgerweg 42, 6367- G W VOERENDAAL

Italy

Bignami S.p.A., Via Sorrento 11/A, I-39100 BOLZANO

Ditta G. Paganini, C. Regina Margherita 19/bis, I-10124 TURIN

Malaysia

Pernas Trading Sdn. Berhad, Tingkat 1, 2 & 3 Bangunan Bakti, 91, Jalan Campbell, KUALA LUMPUR 01-09 P.O. Box 656

Norway

A/S Norma Projektilfabrik, Postboks 40, Refstad, OSLO 5

New Zealand

Ammunition House Ltd., P.O. Box 8511, AUCKLAND 3

C.R. Pain Ltd., C.P.O. Box 256, AUCKLAND 1

Sweden

EME-Norlett AB, Box 369, S-631 05 ESKILSTUNA

FFV Gevärsfaktoret, S-631 91 ESKILSTUNA

HDF-bolagen AB, Box 135, S-301 03

HALMSTAD 1

Switzerland

Petitpierre & Grisel S.A., Avenue de la Gare 49, CH-2002 NEUCHÂTEL

Spain

Honeyll S.A., Avda. Rey D. Jaime, 68,

Apartado 233, CASTELLON

Ocesa, Paseo de los Olmos, 6, SAN SEBASTIAN

USA

General Sporting Goods Corp., P.O. Box 30-06, Ithaca, N.Y. 14850

Western Germany

Firma Gustav Jehn, Postfach 1827, D-4780 LIPPSTADT

Firma Albrecht Kind, Postfach 31 01 45, D-5270 GUMMERSBACH 31

Western Germany; Rod & Gun Clubs

H.W. Krueger & Co KG, Badenstedter Str. 50, D-3 HANNOVER-LINDEN

Yugoslavia

Zastavaimpex, Marsala Tita Br. 19, YU-11001 BELGRADE

Rifle

NEW

	22 HORNET · Ref. 15601	220 SWIFT · Ref. 15701	222 REM. · Ref. 15711	222 REM. · Ref. 15712	222 REM. · Ref. 15713	222 REM. · Ref. 15714	22-250 · Ref. 15733	5,6x52 R (22 Sav. H.P.) · 15604	5,6x52 R (22 Sav. H.P.) · 15605	243 WIN. · Ref. 16002 ¹⁾	243 WIN. · Ref. 16003	6.5 JAP. · Ref. 16531	6.5 JAP. · Ref. 16532	6.5 CARCANO · Ref. 16536	6.5 CARCANO · Ref. 16535	6.5x55 · Ref. 16550	6.5x55 · Ref. 16551	6.5x55 · Ref. 16557	6.5x55 · Ref. 16552	270 WIN. · Ref. 16902	270 WIN. · Ref. 16903	7x57 · Ref. 17002	7x57 R · Ref. 17005	7 MM REM. MAGN. · Ref. 17021	7x64 · Ref. 17013	7x64 · Ref. 17015
Bullet type	HP	SPSP	SPSP	FJSP	FJSP	SPSP	SPSP	SPSP	FJSP	FJSP	SPSP	SPSPBT	SPRN	PP-DC	SPRN	SPSP	SPSPBT	PP-DC	SPRN	SPSP	SPSPBT	SPSP	SPSP	SPSP	SPSP	SP
Bullet weight grams	2.9	3.2	3.2	3.2	3.2	3.4	3.4	4.6	4.6	6.5	6.5	9.0	10.1	9.0	10.1	5.0	9.0	9.0	10.1	8.4	9.7	9.7	9.7	9.7	9.7	11.3
Bullet weight grains	45	50	50	50	50	53	53	71	71	100	100	139	156	139	156	77	139	139	156	130	150	150	150	150	150	175
Bullet ref.	65601	65701	65701	65702	65702	65704	65704	65604	65605	66002	66003	66531	66532	66512	66532	66551	66531	66512	66532	66902	66903	67002	67002	67002	67002	6703
Vel. muzzle f.p.s.	2428 ²⁾	4110	3200	3200	2790	3117	3707	2790	2790	3070	3070	2362	2065	2576	2430	2725	2854	2790	2495	3140	2800	2755	2690	3250	2890	2725
Vel. 100 yds. f.p.s.	1896 ²⁾	3611	2650	2610	2235	2670	3192	2329	2329	2790	2790	2185	1871	2379	2208	2362	2691	2630	2271	2884	2616	2539	2476	2960	2625	2533
Energy muzzle ft/lbs	589 ²⁾	1877	1137	1137	863	1142	1616	1226	1226	2090	2090	1722	1481	2046	2046	1271	2512	2402	2153	2847	2616	2530	2411	3519	2779	2884
Energy 100 yds. ft/lbs	360 ²⁾	1448	780	756	554	838	1198	855	855	1730	1730	1473	1213	1745	1689	956	2233	2136	1787	2401	2280	2148	2042	2919	2295	2493

SPSP = Soft point semi pointed. SPSPBT = Soft point semi pointed boattail. SPSPS = Soft point Spire point. SPRN = Soft point round nose. SPFN = Soft point flat nose. 20 cartridges per box · ¹⁾ = Available until current stock exhausted. ²⁾ Preliminary data.



280 REM. · Ref. 17050 1)	7.5x55 SWISS · Ref. 17511	30 US CARBINE · Ref. 17621	7.62 RUSSIAN · Ref. 17634	30-06 · Ref. 17640	30-06 · Ref. 17643	30-06 · Ref. 17648	30-06 · Ref. 17649	30-06 · Ref. 17653	30-30 WIN. · Ref. 17630	30-30 WIN. · Ref. 17631	308 WIN. · Ref. 17623	308 WIN. · Ref. 17624	308 WIN. · Ref. 17628	308 WIN. · Ref. 17635	308 WIN. · Ref. 17636	308 NORMA MAGN. · Ref. 17638	7.65 ARGENTINE · Ref. 17701	303 BRITISH · Ref. 17712	303 BRITISH · Ref. 17713	7.7 JAP. · Ref. 17721	7.7 JAP. · Ref. 17722	8x57 J · Ref. 17901	8x57 JS · Ref. 18003	8x57 JS · Ref. 18007	9.3x57 · Ref. 19302	9.3x57 · Ref. 19303	9.3x62 · Ref. 19314	9.3x62 · Ref. 19315
SPSP	SPSPBT	SPRN	SPSPBT	SPSP	SPSP	SP-A	SP-N	PP-DC	SPFN	SPFN	SPSP	SPSP	PP-DC	SP-N	SP-A	PP-DC	SPSP	SPSP	SPSPBT	SPSP	SPSPBT	SP-A	SP-A	PP-DC	PP-DC	SP-A	PP-DC	SP-A
9.7	11.6	7.1	11.6	8.4	9.7	11.6	11.6	11.6	9.7	11.0	8.4	9.7	11.6	11.6	11.6	11.6	9.7	9.7	11.6	8.4	11.6	12.7	12.7	12.7	18.5	18.5	18.5	18.5
150	180	110	180	130	150	180	180	180	150	170	130	150	180	180	180	180	150	150	180	130	180	196	196	196	286	286	286	286
67002	67625	67621	67625	67623	67624	67648	—	67628	67630	67631	67623	67624	67628	—	67648	67628	67701	67701	67713	67711	67713	67901	68003	68007	69303	69315	69303	69315
2900	2650	1970	2575	3205	2970	2700	2700	2700	2329	2133	2900	2860	2610	2610	2610	3020	2789	2720	2540	2950	2495	2525	2525	2525	2065	2065	2360	2360
2683	2461	1595	2382	2876	2680	2493	2513	2513	1998	1808	2590	2570	2400	2400	2393	2815	2533	2440	2340	2635	2292	2195	2195	2195	1818	1818	2088	2088
2802	2807	948	2650	2966	2943	2914	2914	2914	1806	1717	2428	2725	2725	2725	2725	3646	2591	2465	2579	2513	2484	2778	2778	2778	2714	2714	3544	3544
2398	2420	622	2268	2388	2393	2484	2524	2524	1330	1234	1937	2200	2303	2303	2287	3167	2137	1983	2189	2004	2100	2097	2097	2097	2099	2099	2769	2769

SP-A = Soft point Alaska. SP-N = Soft point Nosler. PP-DC = Plastic Pointed Dual-Core. FJSP = Full jacket semi pointed. HP = Hollow point.
Further details in our "Ballistics Table"



Rifle shooters laid the four

It all began in 1902 with the manufacture of Match-bullets for the Swedish National Shooting Association. Already then shooters demanded accuracy. To this day Norma makes bullets known for their superb accuracy. For almost 80 years Norma has kept developing bullets. For the particular benefits of today's pistol shooters. This is where accuracy and not least function is important.

When, at the beginning of the century, we discovered that it took more than a bullet to achieve accuracy, we began to load the ammunition ourselves. Today we rank as one of the world's leading manufacturers of pistol and revolver ammunition.

In particular, the important factors, reliability of function and unsurpassed accuracy have made shooters all over the world trust Norma.

When you go to the range to participate in a major event it is important to trust the ammunition. This gives a decisive psychological advantage which makes your own skill and ability count.



Validation of Norma accuracy

Cartridge ref.	Bullet weight		Bullet type	Bullet			Velocity feet/sec.	Energy ft/lbs
	grains	grams		length inch.	diam. inch.	ref.		
30 Luger 17612	93	6.0	Full jacket round nose	.58	.308	67612	1230	312
32 ACP 17614	77	5.0	Full jacket round nose	.49	.308	67610	900	139
32 S&W Long 17810	98	6.4	Lead wadcutter NEW	.57	.314	67810	787	135
9 mm Luger 19021	115	7.4	Hollow point	.57	.355	69021	1165	350
19022	116	7.5	Full jacket round nose	.60	.355	69010	1165	350
19026	116	7.5	Soft point flat nose	.53	.355	69026	1165	350
38 Special 19119	110	7.1	Hollow point	.51	.357	69123	1542	580
19110	148	9.6	Lead wadcutter	.65	.357	69110	800	210
19112	158	10.2	Lead round nose	.69	.357	69112	870	266
19114	158	10.2	Full jacket semi wc	.73	.357	69106	900	285
19124	158	10.2	Soft point flat nose	.66	.357	69107	900	285
19125	158	10.2	Hollow point	.68	.357	69101	900	285
357 Magnum 19101	158	10.2	Hollow point	.68	.357	69101	1450	735
19106	158	10.2	Full jacket semi wc	.73	.357	69106	1450	735
19107	158	10.2	Soft point flat nose	.66	.357	69107	1450	735
44 Auto Mag. 11105	240	15.6	Power Cavity ¹⁾	.69	.430	61103	1350	976
44 Magnum 11103	240	15.6	Power Cavity	.69	.430	61103	1675	1496

50 cartridges per box. ¹⁾ In USA 20 cartridges per box.

Match ammunition from Norma

Norma not only manufactures hunting and handgun ammunition. Match ammunition for the National Shooting Association has been an important corner-stone for Norma for many years. We make cartridges for 300 m range shooting and special loads for other disciplines.

This year we have decided to broaden the range and introduce two versions of .22 Long Rifle cartridges to meet the increased interest in small bore events.

The Norma .22 Long Rifle for rifle and pistol meet the same stringent quality requirements for accuracy and function as the rest of our products.

These products are available only in Sweden and Denmark and through our own distributive organization.



If you load your own you

Reloading is an interesting hobby with many advantages. You can tailor-make your own cartridges to suit your own gun or load cartridges which are not commercially available. Last but not least it can be economically advantageous to load your own ammunition. You can train more for less. Additional information and loading data are available in the new "Norma Ballistics and Loading Data". It is available at your dealer or can be obtained by writing to us.

NORMA UNPRIMED CASES

In fact Norma makes cases which are too good. If you are not a handloader that is. The truth of the matter is that a case can be used several times. The average shooter who does not reload his case has only used a part of the product.

The reloader, however, can use his case more than ten times with excellent results. That is Norma quality.

Rifle cases

packed in boxes of 20.

22 Hornet	Ref. 25601
220 Swift	Ref. 25701
222 Rem.	Ref. 25711
22-250	Ref. 25731
5.6x52 R	Ref. 25604
243 Win.	Ref. 26001
6.5 Jap.	Ref. 26531
6.5 Carcano	Ref. 26535
6.5x55	Ref. 26551
270 Win.	Ref. 26901

7x57 R	Ref. 27004
7 mm Rem. M	Ref. 27021
7x64	Ref. 27012
280 Rem. *)	Ref. 27050
7.5x55 Swiss	Ref. 27511
30 US Carbine	Ref. 27620
7.62 Russian	Ref. 27634
30-06	Ref. 27640
30-30 Win.	Ref. 27630
308 Win.	Ref. 27623
308 Norma M	Ref. 27637
7.65 Argentine	Ref. 27701
303 British	Ref. 27711
7.7 Jap.	Ref. 27721
8x57 J*)	Ref. 27901
8x57 JS*)	Ref. 28001
9.3x62*)	Ref. 29311

Pistol and revolver cases

packed in boxes of 50.

32 S&W Long	Ref. 27811
9 mm Luger	Ref. 29021
38 Special	Ref. 29110
357 Magnum	Ref. 29101
44 Auto Mag	Ref. 21102
44 Magnum	Ref. 21101

NORMA POWDER

Norma offers a powder suitable for most loads and calibres. Each type gives the most advantageous combustion within its group of calibres and our technicians and ballistics department continuously monitor this. Norma powders are available for both pistol and rifle ammunition. Contents 500 grams per can, R-1 250 grams.

Norma powder 200 (93200)

The fastest of the Norma rifle powders. Suitable for 222 Rem. and for light bullets in large calibres.

Norma powder 201 (93201)

Somewhat slower than 200. Suitable for 9.3 mm and similar large calibres where powder gases must fill a relatively large volume while the bullet moves through the barrel.

Norma powder 202 (93202)

is a faster burning powder than 204, suitable for loading cartridges in the medium ranges (7x57, 30-06, 8 mm etc)

Norma powder 204 (93204)

is a slow burning powder suitable for large case volumes and relatively small calibres. 204 is excellent for 270 Winchester etc.

Norma Magnum Rifle powder (93215)

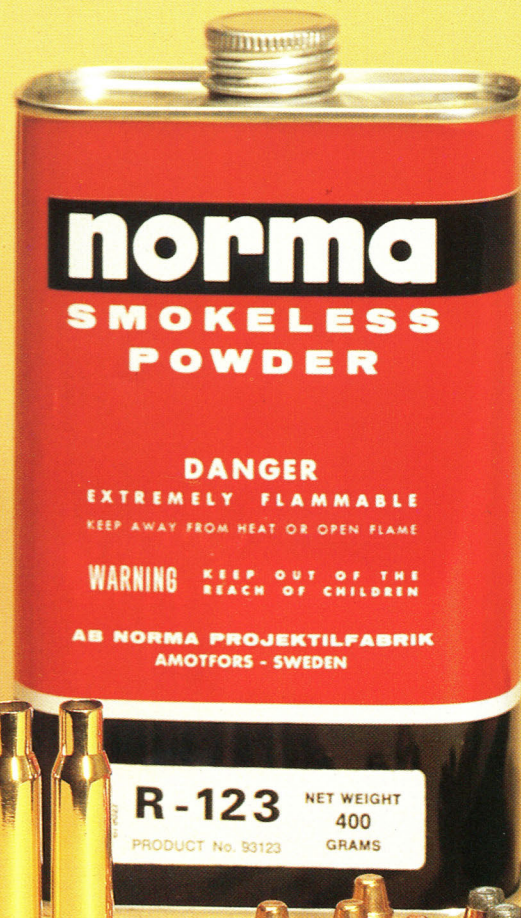
is a special powder for Magnum rifle cartridges. It is also suitable for certain cartridge combinations outside the Magnum group, but it is important to follow closely the loading data given.

Norma R-1 (91101)

is a very fast burning powder for revolver cartridges. The powder flows easily and is very suitable for semiautomatic powder gauges.

Norma powder R-123 (91123)

is a slow burning powder for revolver cartridges, e.g. 357 and 44 Magnum with jacketed bullets. Burns as cleanly as R-1 and is equally easy to handle, but the slow rate of burning makes pressures lower and loading weights higher to give increased velocities.

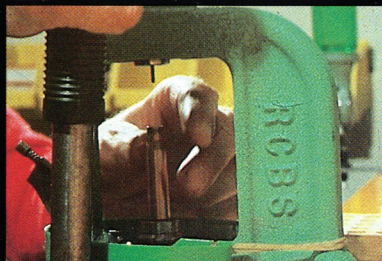


It is as easy as this to load a training cartridge:

1. Inspect and lubricate the case.
2. Calibrate the case and remove the old primer.
3. Clean the case and primer pocket.

To load your own ammunition is not at all difficult. To further the interest in handloading, Norma has produced a new film on this subject. It is available on loan free of charge. Please contact our local representative or write to us direct.

This is how it is done.



can afford to shoot more

NORMA BULLETS

The art of making accurate bullets has a long tradition at Norma. It began with bullets and still no effort is spared to develop the bullets. Norma today offers four different types of bullets for hunting. Each has its special advantages to make it possible to tailor-make a cartridge for each particular type of hunting. A common feature is deep penetration and controlled expansion.

Rifle bullets

in boxes of 100.

.22 cal. (.224)			
Ref. 65701	50 gr/3.2 g	SPSP	
Ref. 65702	50 gr/3.2 g	FJSP	
Ref. 65704	53 gr/3.4 g	SPSPBT	
5.6 mm (.228)			
Ref. 65604	71 gr/4.6 g	SPSP	
Ref. 65605	71 gr/4.6 g	FJSP	
6 mm (.243)			
Ref. 66002	100 gr/6.5 g	FJSP	
Ref. 66003	100 gr/6.5 g	SPSP	
6.5 mm (.264)			
Ref. 66551	77 gr/5.0 g	SPSP	
Ref. 66522	80 gr/5.2 g	FJRN	
Ref. 66512	139 gr/9.0 g	PP-DC	
Ref. 66513	139 gr/9.0 g	FJFPT	

NORMA PRIMERS

Norma only uses first class primers for the factory loaded ammunition. The same opportunity is offered to the hand-loaders. All are non-corrosive and non-erosive and are available for both pistol and rifle ammunition. Primers are packed in boxes of 100.

Small Pistol Primer (84410)
for pistol and revolver cartridges, e.g. 38 Special, 357 Magnum etc. 4.45 mm diam.

Ref. 66531	139 gr/9.0 g	SPSPBT
Ref. 66510	144 gr/9.3 g	FJFPT
Ref. 66532	156 gr/10.1 g	SPRN

.270 cal. (.277)		
Ref. 66902	130 gr/8.4 g	SPSPBT
Ref. 66903	150 gr/9.7 g	SPSPBT

7 mm (.283)		
Ref. 67002	150 gr/9.7 g	SPSPBT

.30 cal. (.308)		
Ref. 67621	110 gr/7.1 g	SPRN
Ref. 67623	130 gr/8.4 g	SPSP

Ref. 67677	130 gr/8.4 g	FJRN
Ref. 67602	146 gr/9.5 g	FJP *
Ref. 67624	150 gr/9.7 g	SPSP

Ref. 67630	150 gr/9.7 g	SPFN
Ref. 67631	170 gr/11.0 g	SPFN
Ref. 67625	180 gr/11.6 g	SPSPBT

Ref. 67628	180 gr/11.6 g	PP-DC
Ref. 67648	180 gr/11.6 g	SP-A

.303 cal. (.311)		
Ref. 67711	130 gr/8.4 g	SPSP
Ref. 67701	150 gr/9.7 g	SPSP

Ref. 67713	180 gr/11.6 g	SPSPBT
8 mm (.318)		
Ref. 67901	196 gr/12.7 g	SP-A

8 mm S (.323)		
Ref. 68013	108 gr/7.0 g	FJRN
Ref. 68003	196 gr/12.7 g	SP-A

Ref. 68007	196 gr/12.7 g	PP-DC
9.3 mm (.365)		
Ref. 69304	154 gr/10.0 g	FJRN

Ref. 69303	286 gr/18.5 g	PP-DC *)
Ref. 69315	286 gr/18.5 g	SP-A *)

9.3 mm (.365)		
Ref. 69304	154 gr/10.0 g	FJRN
Ref. 69303	286 gr/18.5 g	PP-DC *)

Ref. 69315	286 gr/18.5 g	SP-A *)
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Small Rifle Primer (84420)		
4.45 mm dia. of a similar construction to the LR primer. To be used in cartridges for case diameters.		

Large Pistol Primer (85310)		
for large pistol and revolver cartridges, e.g. 45 ACP, 44 Magnum etc. 5,33 mm dia.		

Large Rifle Primer (85320)		
with 5,33 mm dia. and suitable for virtually all common rifle cartridges except 22 Hornet and 222 Rem.		

Pistol and revolver bullets

in boxes of 100.

.30 cal. (.308)		
Ref. 67610	77 gr/5.0 g	FJRN
Ref. 67612	93 gr/6.0 g	FJRN

.32 cal. (.314)		
Ref. 67810	98 gr/6.4 g	LWC

9 mm (.355)		
Ref. 69021	115 gr/7.4 g	HP
Ref. 69010	116 gr/7.5 g	FJRN

Ref. 69026	116 gr/7.5 g	SPFN
.38 cal. (.357)		
Ref. 69123	110 gr/7.1 g	HP

Ref. 69110	148 gr/9.5 g	LWC
Ref. 69101	158 gr/10.2 g	HP
Ref. 69106	158 gr/10.2 g	FJSWC

Ref. 69107	158 gr/10.2 g	SPFN
Ref. 69112	158 gr/10.2 g	LRN

.44 cal. (.430)		
Ref. 61103	240 gr/15.6 g	PC

*) Available until current stock exhausted.		
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!) In boxes of 50.		
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SPSP = Soft point semi pointed		
SPSPBT = Soft point semi pointed boattail		

SPRN = Soft point round nose		
SPFN = Soft point flat nose		

SPSP = Soft point Spire point		
SP-A = Soft point "Alaska"		

PP-DC = Plastic Pointed "Dual-Core"		
FJSP = Full jacket semi pointed		

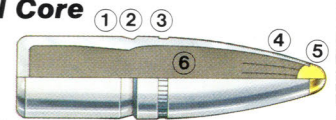
FJRN = Full jacket round nose		
FJP = Full jacket pointed		

FJFPT = Full jacket pointed boattail		
FJSW = Full jacket semi wadcutter		

LW = Lead wadcutter		
LRN = Lead round nose		

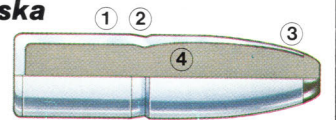
HP = Hollow point		
PC = Power Cavity		

Dual Core



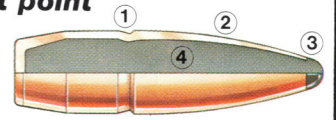
1. Reinforced jacket
2. Cannelure
3. Identification cannellure
4. Thin walled jacket with internal mushrooming grooves.
5. Plastic point
6. Antimony alloyed lead core

Alaska



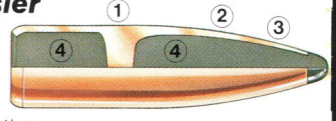
1. Reinforced rear portion jacket
2. Cannelure
3. Thin wall jacket
4. Antimony alloyed lead core

Soft point



1. Cannelure to bond lead core to jacket
2. Tri-clad jacket
3. Soft lead point
4. Antimony alloyed lead core

Nosler



1. Partition
2. All-tombac jacket
3. Thin walled front of jacket
4. Antimony alloyed lead cores

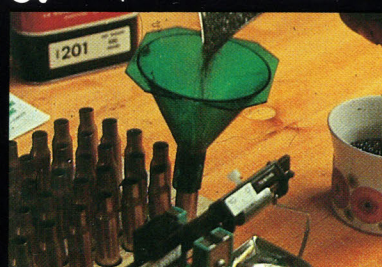
(Schematic illustrations)



4. Insert new primer into primer pocket.



5. Powder charge is weighed and poured into the case.



6. The bullet is positioned and crimped into the case.



7. Check the correct overall length of the cartridges.



Training is increasing - tha

Training makes perfect. This is particularly true of shooters and hunters. If you shoot often and a lot you get to know your gun and are able to hunt better. At the moment of firing there is no time for mistakes. The shot must be positioned where it counts and it is on the range where this skill is achieved.

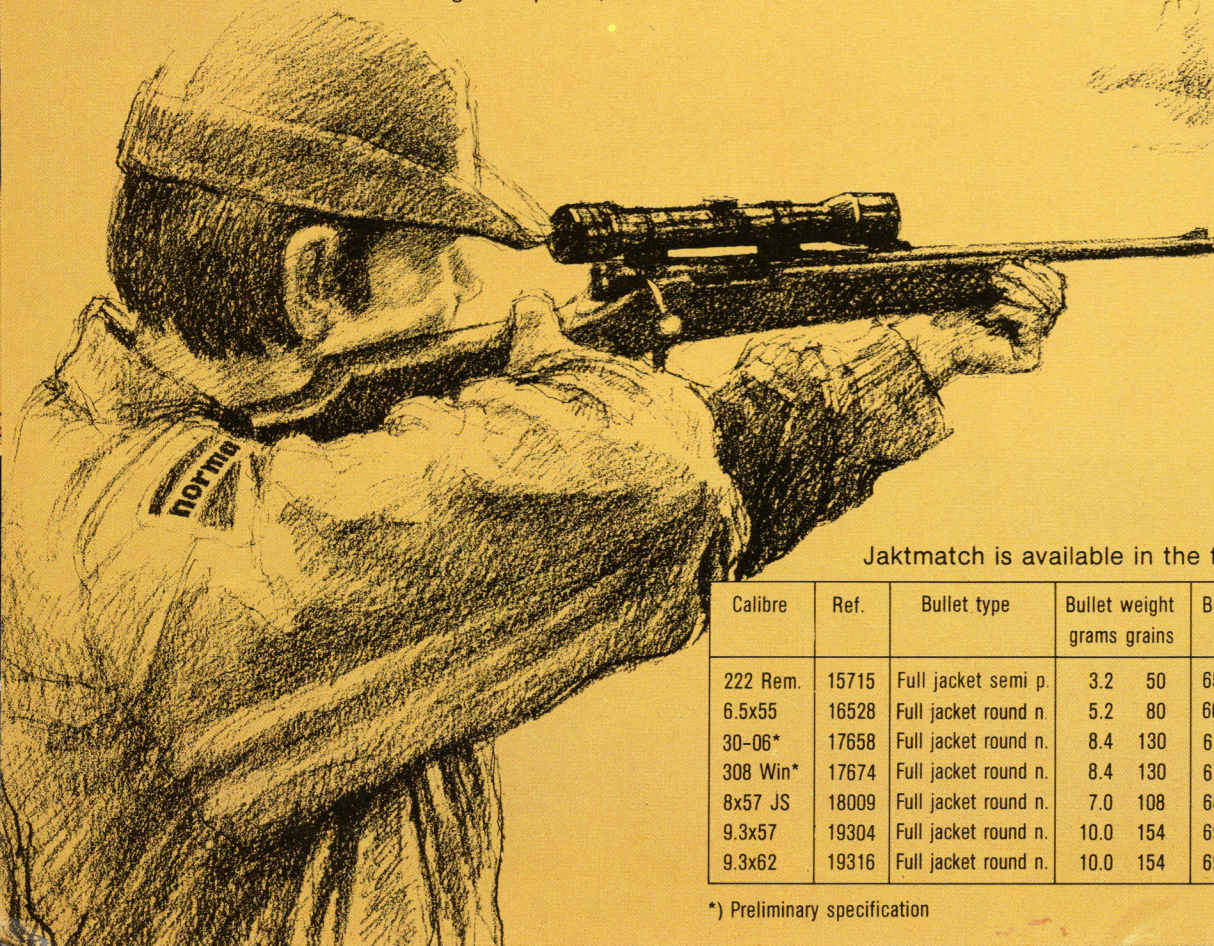
To make training less expensive Norma has developed a range of hunting training ammunition, Jaktmatch. This ammunition is produced with the same care as the rest of the cartridges, but using more efficient handling and larger packs, the price can be kept lower than for conventional ammunition.

Jaktmatch is your training cartridge. It is kind to your wallet and your shoulder. Using special powders in combination with lighter bullets, the recoil is less.

Jaktmatch is now available in the most popular calibres, packed in boxes of 50.

Keep training with Jaktmatch, but do not forget to finish your training session with the very cartridges you intend to use for your hunt. Then you will know the point of impact of your gun, also with your hunting cartridges. No two guns shoot alike with different ammunition and that is why it is so important to do this final test before your hunt.

Not only is Jaktmatch an excellent training cartridge. Whenever Full Jacketed ammunition for hunting is required, Jaktmatch will fit the bill.



Jaktmatch is available in the following calibres

Calibre	Ref.	Bullet type	Bullet weight		Bullet ref.	Velocity f/s		Energy f/lbs	
			grams	grains					
222 Rem.	15715	Full jacket semi p.	3.2	50	65702	3200	2610	1137	756
6.5x55	16528	Full jacket round n.	5.2	80	66522	3058	2444	1661	1061
30-06*	17658	Full jacket round n.	8.4	130	67677	2900	2465	2427	1754
308 Win*	17674	Full jacket round n.	8.4	130	67677	2854	2424	2350	1695
8x57 JS	18009	Full jacket round n.	7.0	108	68013	2976	2178	2122	1137
9.3x57	19304	Full jacket round n.	10.0	154	69304	2526	1987	2186	1353
9.3x62	19316	Full jacket round n.	10.0	154	69304	2854	2275	2790	1772

*) Preliminary specification

Thanks to Jaktmatch!

Do you know your point of impact?

Is it necessary to sight in your rifle? The question may seem unjustified, but the fact of the matter is that many a hunter does not take the sighting in seriously enough. Some argue that once sighted in will suffice. Nothing can be more wrong.

One of the most important prerequisites for a successful hunt is that the gun is properly sighted-in with the ammunition type that is to be used. And that the gun delivers the bullets where you aim. A visit to the shooting range is therefore highly justified before going into the field.

Why then does not the bullet hit the point-of-aim?

The answer is quite simply that the line of sight does not correspond to the trajectory. In fact it never does. The bullet never travels straight through the air, but through an arc.

It is called ballistics and sounds very complicated. Let's try to simplify it and describe what happens to the bullet which you send toward your target.

Very much simplified one could say that the bullet falls to the ground as quickly as a stone dropped at your feet. The only difference being that the bullet also moves forward at the same time.

If you remember this when sighting in your gun you will also realize how important it is to choose the right sighting in distance. i.e. the distance where the bullet strikes the bull's-eye.

For what distances shall I then sight in my rifle?

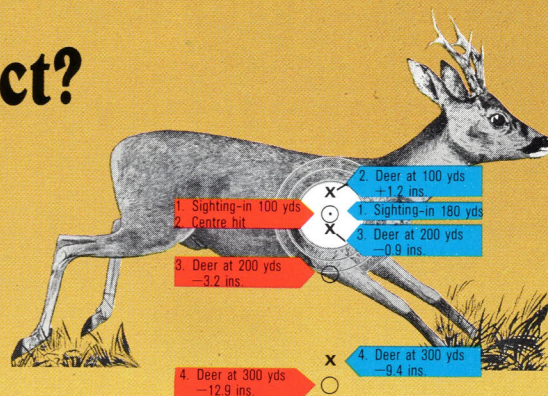
Primarily that depends upon what distances you expect to get during your hunt. We shall give a few examples using three popular calibres: 222 Rem., 30-06 and 9,3x62.

222 Rem. is a popular calibre for deer in many countries. The target area on a deer is limited and here it is very important to have chosen the right sighting-in distance.

The illustration shows the practical results of two usual sighting-in distances: 100 and 180 yds. The three shots are fired at an animal standing at 100, 200 and 300 yds distance aimed at the centre of the target area. At 300 yds it is a clear miss at 180 yds.

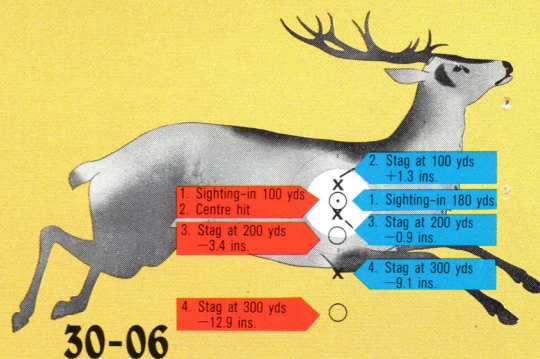
The same is true for the heavier calibres 30-06 and 9,3x62. For all practical purposes shots at 300 yds even on targets as large as a moose should be avoided. There is a considerable risk of maiming the animal.

That is why you should sight in your rifle for the longest practical distance used during your hunt. Beyond the distance where the rifle is sighted in, the bullet falls very quickly. Most game in Europe is shot at distances below 100 yds. However, we have illustrated the point-of-impact at 300 yds in the illustration to show that it is not recommended to shoot at such distances. Keep this in mind when you go hunting.



222 Rem.

The circle shows point-of-impact using a gun sighted in at 100 yds and the cross sighted in at 180 yds. As you can see, you would miss a deer standing at 300 yds. Also at 200 yds you run a serious risk of maiming if the gun is sighted in at 100 yds.



30-06

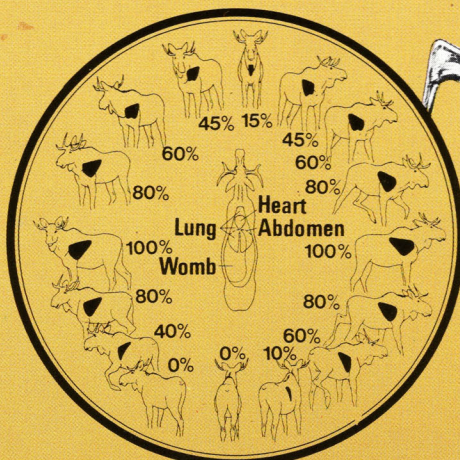
A 30-06 bullet fired at 100 and 200 yds at a stag will almost always hit irrespective of the gun having been sighted in at 100 or 180 yds thanks to the large vital target area. But if the stag stands at 300 yds, the shot is a miss or will maim.

The game clock - an alarm for hunters

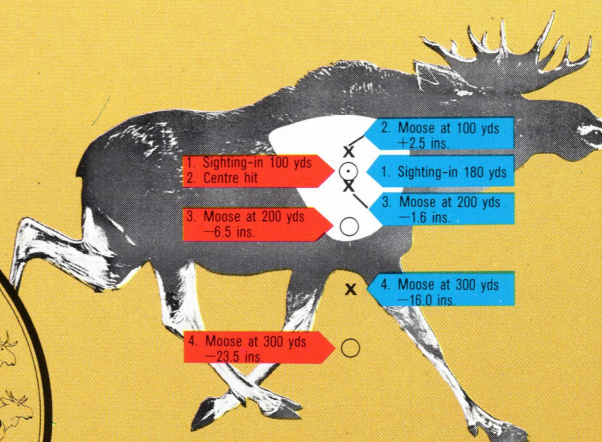
The game clock is a useful tool and reminder for each hunter before going hunting. It clearly shows the size of the vital target area from different angles. This is not only true of moose but all large and medium size game.

The most effective angle is a clean sideshot. That is when the game exposes the largest vital target area and you do not run the risk of hitting hard bones which may deflect the bullet. Hitting at an angle from the front or rear means a considerably reduced area and an increased risk of maiming.

The game clock does not show the time, but your odds of hitting your game. An alarm clock for hunters.



© Svenska Jägareförbundet. Design B.O. Röken



9,3x62

A slow and heavy bullet falls very quickly at long distances. At 300 yds an 286 grain bullet in 9.3 calibre falls 23.5 ins. if sighted in at 100 yds. It is obviously a total miss. Already at 200 yds it becomes a gamble with a gun sighted in at 100 yds. The bullet strikes 6.5 inch. under point-of-aim. Even if the gun is sighted in at 180 yds, 300 yds is too long a distance.

Shooting through branches

If you do not have a clear field of fire all shots become a gamble irrespective of your marksmanship. Even a very small twig in the path of the bullet will result in a miss or a maimed animal. In order to determine the effects of obstructions in the path of a hunting bullet, a test programme has been carried out at Norma. We knew that the performance of the bullet is influenced by obstructions before commencing the tests. But what would be the extent and would it be possible to prove a difference between different bullet types?

Many hunters believe in heavy bullets. This can lead to taking chances even when there is no free field of fire. Our tests gave us many interesting answers.

For our tests we used two sheets of cardboard positioned at three metres distance. In front of the first sheet there were a few thin branches approximately 2–5 mm thick. Between the sheets there were branches up to 15 mm thick. Behind the second sheet was the backstop. The effects on the different bullets are illustrated on these pages. It is an interesting series.

We can conclude that no bullet can pass through obstructions in its path without losing performance. A branch the thickness of a pencil can destroy any hunting bullet irrespective of shape, weight or velocity. Consequently also its effect on the game. The closer the obstruction is to the gun, the greater is the risk of seriously maiming your game or missing altogether.

Even the heavy 18.5 gram Dual Core bullet in 9,3x62 is affected by obstructions. A 16 mm thick branch caused the bullet to tumble and it would not have been effective on a moose.

Tests were also conducted in a cultivated field. Even thin strands of wheat effect the bullet. Ordinary grass on the other hand does not seem to influence a rifle bullet, particularly not the slow and heavy ones.

Only fire in an unobstructed field of fire. That is when chances of success are the greatest.



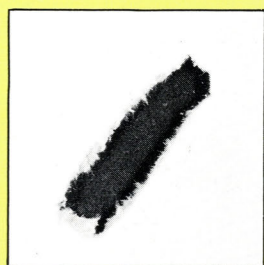
222 Rem.

The .222 bullet cut through 2–3 mm thin twigs in front of sheet no 1, key-holed through the sheet, touched a 15 mm twig between the sheets and went broad side first through sheet no 2.



30-06

The 11,6 gram bullet in .30-06 went through a 7 mm twig in front of sheet no 1, cut a 14 mm twig between the sheets and key-holed through sheet 2. The tumbling has already begun in sheet no 1.



The test shooter and the targets. The two sheets are positioned at 3 metres distance.



At the rear of the targets one can see how bullets have key-holed and thrown debris.



22 Hornet

A new varmint cartridge: .22 Hornet. Demanded by many, not least by bird hunters. This cartridge was designed about 50 years ago as a high velocity cartridge for vermin and very quickly became popular thanks to its accuracy. It is useful on smaller game from fox and below. The high accuracy in combination with a flat trajectory makes .22 Hornet very useful for bird and fox hunting.

The accuracy also means that the .22 Hornet is suitable for competition and training.

The interest in .22 Hornet is increasing and in Europe this cartridge has a solid reputation among shooters and hunters. In Germany this cartridge is being used for hunting related competitions.



and brush affects all bullets



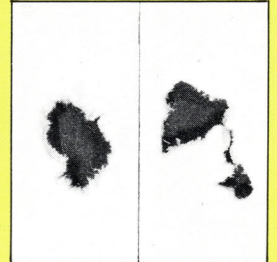
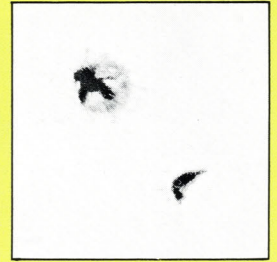
6,5x55

The 6,5 mm 9 gram bullet cut a 4 mm branch in front of sheet no 1 and then this 15 mm branch, completely missing sheet no 2 despite it being 70x100 cm.



30-06

The fast 8,4 gram bullet in .30-06 hit a 2 mm twig in front of sheet no 1 and started to divide, touched this 10 mm twig between the sheets. Jacket and core went through sheet no 2 separately.



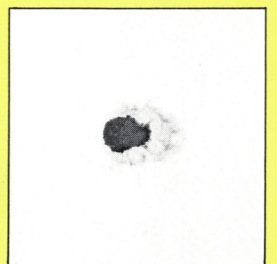
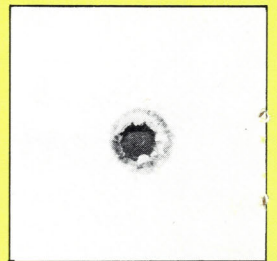
Jaktmatch

A full jacketed jaktmatch bullet in caliber .30-06 touched a thin branch in front of sheet no 1 causing it to tumble slightly and then went through a 15 mm twig and key-holed through sheet no 2.



9,3x62

The 18,5 gram Dual-Core bullet in 9,3x62 cut through two 2-3 mm twigs in front of sheet no 1 without any appreciable effect. The bullet then went through this 16 mm thick branch causing the bullet to begin tumbling through sheet 2.



NEW!

32 S&W Long

This year Norma introduces a long awaited caliber for the full bore pistolshooters: .32 S&W Long. This cartridge and its excellent performance has given new life to full bore pistol shooting not only in Sweden but in the rest of Europe as well.

More and more shooters give up small bore pistol shooting for the full bore disciplines following the results achieved with the new .32-caliber. The reason is this new cartridge with its superb accuracy.

The design is an excellent blend of load and bullet weight. In addition the wadcutter bullet design further enhances the accuracy.

Pistol shooters all of the world now use .32 S&W Long and the interest is growing. Gun makers have also taken note of this and introduced guns to suit this round.

The Norma .32 S&W Long is the result of extensive tests with various loads. The result is an excellent competition cartridge with first class performance.



Private Brand



Not only does Norma produce ammunition under its own name. Also other manufacturers of guns and ammunition appreciate Norma quality. This is why we produce cartridges for Weatherby, Browning and Holland & Holland. Names which all in their own countries and abroad are known for quality and performance.

Gifts and accessories from Norma



To stimulate shooting we also sell gifts and accessories for shooters and hunters. Such as shooting glasses, equipment bags, T-shirts, sweaters and cloth badges. We also sponsor shooting events with prizes and other support.

Write to us or our appointed distributors for a list of prizes.

We reserve the right to change specifications and designs without prior notice.

Ammunition guarantee



Many years ago an agreement was made between several gunmaking nations in Europe concerning the proof testing of guns.

COMMISSION INTERNATIONALE PERMANENTE POUR L'EPREUVE DES ARMES A FEU PORTATIVES, or CIP, operates under the auspices of the Belgian government.

During the past 2-3 years ammunition also has to be tested by CIP. The aim is to protect the legitimate interests of the ammunition consumers. CIP guarantees that the buyer gets a safe and reliable product. The ammunition makers are subject to control by the government proof houses which have now been established in the major European countries. The tests concern themselves primarily with production and control methods, measurements, pressures and packing.

Only an acceptable product may carry the stamp of the controlling proof house.

Sweden is not a member of CIP and has no government owned proof house. Norma has therefore made an arrangement with the Belgian proof house Banc d'Epreuve in Liège to control our ammunition in accordance with the CIP specifications.

Successively from 80/81 the stamp illustrated above will be printed on our ammunition boxes. It is a guarantee that Norma ammunition fully complies with the CIP quality requirements.

SETTERBERGS REKLAM AB · ARVKA TRYCKERIAKTIEBOLAG · PRINTED IN SWEDEN

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